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# Psychological Bulletin

EDITED BY

SHEPHERD I. FRANZ, GOVT. HOSP. FOR INSANE

HOWARD C. WARREN, PRINCETON UNIVERSITY (*Review*)

JOHN B. WATSON, JOHNS HOPKINS UNIVERSITY (*J. of Exp. Psych.*)

JAMES R. ANGELL, 522 FIFTH AVENUE, NEW YORK (*Monographs*) AND  
MADISON BENTLEY, UNIVERSITY OF ILLINOIS (*Index*)

WITH THE CO-OPERATION OF

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THE

# PSYCHOLOGICAL BULLETIN

## A NOTE ON SOCIAL INHERITANCE

BY HORACE B. ENGLISH

*Wellesley College*

Social psychologists are coming more and more to realize the importance of social as well as biological inheritance. As well attempt to study man without considering the instinctive bases of his conduct as without considering the influence upon him of the *mores* of his group. Indeed it is only by a genetic study that the social inheritance of the adult is to be distinguished from the biological. Traditional motivations are knit into the texture of our minds with equal firmness to the instinctive or innate, determining thought and conduct with the same certainty and with the same subjective characters of immediacy and self-evidence.

Among the factors in social inheritance, the family name plays an important and neglected part. It is the carrier of family tradition. In almost direct proportion to the fixity of the community, the individual is conscious of his family and of the family characteristics which are his. But which are his family characteristics? Those largely of the male line from which he derives his name.

To be sure, the child is much more with his mother and in a measure with his maternal relatives. Hence of his immediate ancestors, the maternal may well play a preponderating part. Naturally too, where the mother's family is the more distinguished, the child will be taught to regard himself as belonging to the strain of—his mother's father.

I do not mean to underestimate the part played by the mother in the education of the child, nor to deny to her her established position as the conservator of tradition. Just as color-blindness is inherited through the female, evidenced however in the male, so may family tradition, or social inheritances in general, be handed down through the mother. But the mother no less than others is subject to the influence of a persisting family name.

Over how many generations does such influence last? Especially in modern society, the amount of oral tradition is limited by forgetfulness. Herein lies the advantage of the family name as the conservator of family traditions. Whatever other inheritance the father leaves his son, he leaves him his name. About this cluster those parts of family tradition which are most hardy. The individual is thought of and thinks of himself as a Johnson, a Smith, a Warren, as the successor of the long line of those bearing his name. He may have learned from a genealogically inclined mother considerably more of his maternal than of his paternal ancestors. Yet in the absence of very strong contrary influences (which of course are often present) the traditions which will be remembered, preserved, and handed down will be those which cluster about his family name.

In a recent story in *The Atlantic*, the central figure is made to reincarnate in experience and thoughts one of his ancestors.<sup>1</sup> With the theory of inheritance thus implied we need not trouble ourselves, since the author would doubtless disclaim any intention of presenting a serious scientific position. But his choice of an ancestor to be reincarnated is significant—it was one whose name the hero bore.

It is not alone that the individual is thus one-sidedly aware of his family tradition. In the *Education of Henry Adams* is revealed, somewhat pathetically, the pressure exercised upon one's life by bearing an historic name. Surely it is not unfair to urge that the importance of the Adams family in American life is due, not solely to inherited ability (i.e., biologically inherited ability) but to the popular ascription to them of traditional Adams ability. Each is in his turn "The Adams" or at least "An Adams" as truly as the head of a Scotch sept is "The MacGregor." Descendents on the female line are not Adamses; they are merely descended from John Adams.

No doubt this is an extreme case, yet one which serves to throw into clear light, a tendency to which we are all in greater or less degree subject. Primogeniture and inheritance of property exclusively by males has practically died out but in large measure our social inheritance is dominated by the family name; in even larger measure is what we shall transmit thus dominated. The increasing activity of women in the life of the community may be expected to modify this to a certain extent, but so long as that is the source of his name, every child will be in a peculiar sense the son of his father. Words yet exercise, even in modern society, their wonder working, magic power, and of all words none is so potent as *The Name*.

<sup>1</sup> WILSON FOLLETT. *The Dive.* *Atlantic Mon.*, Dec., 1919.

## GENERAL REVIEW AND SUMMARY

## INSTINCT, IMITATION, PLAY

BY E. N. HENDERSON

*Adelphi College*

The study of instinct in recent years may be said to have followed four general lines: (1) Attempts to analyze instinctive activities and to develop a mechanical or psychological theory to explain them; (2) proposed classifications of instincts; (3) studies of particular instincts in man and the brutes; (4) comparison of the relative strength of the various instincts.

1. Swindle (19) analyzes the nest-building activities of birds into an interplay of "instinct groups." Instinct groups are defined as "series of innately associated activities of an organism." The instinct group thus affords the unit, and it is comparatively invariable in nature. Such an activity as nest-building, however, Swindle finds to be far from unvarying. On the contrary, it involves a great number of movements which, though instinctive, are frequently ill adapted to the situation as a whole. Each instinct group may be in itself suggested by the appropriate stimulus, but the successive groups are not coördinated in an economical and efficient manner. Material brought to the nests may be dropped and not recovered. Nests may be left half built. Even outside the mating season birds may partially build nests. Multiple nests may be constructed, as fast as one is completed another being begun. Good nest builders have greater "excess of useful over useless movements" than poor ones. Further, Swindle (20) finds in the activity of peristalsis a basis for the instinct group, which in this connection he defines as "a number of qualitatively very similar movements which are innately associated and which accordingly induce or condition one another in the particular temporal order in which they occur." Such a group maintains its identity in different environments because it occurred more frequently as a whole than as fragments of a whole. It may thus be transferred from one situation to another, appearing in a variety of complexes. The method of the raven in cleaning its beak was probably, Swindle (18) thinks, transferred from the method and rhythm of tugging and

jerking the beak to right and left when it is tearing the flesh from the body of its prey.

Bock (1) makes a study of what happens when his subjects beat out certain rhythms under the control of marginal attention. The beats fall in groups. The numbers of beats in the larger groups are multiples of those in the smaller ones, or they are related to each other as are small integers. A similar relation holds among the tempos of the different beatings. However, the tempos and the number of the beats in the groups vary independently. Instinctive activities similarly involve, Bock thinks, two variables, while reflexes involve only one.

These studies may be said to be concerned in the mechanical analysis of the instinctive activity. Craig (4), on the other hand, emphasizes the importance of an inner psychical factor, appetite or aversion, in guiding the progress of the instinctive activity. In consequence of this guidance it is not merely a chain reflex. Appetites or aversions are satisfied by final consummatory reactions. Such consummatory reactions may be provoked by the intensity of the appetites in conditions where they can not successfully be completed. Thus one may start eating movements from hunger though food be absent. In that event the consummatory reaction will be only half executed, but its initiation is evidence that the instinctive activity is not, like the reflex, purely under external control. Inner control rather than mere chance "excess of useful over useless movements" as suggested by Swindle may lie back of successful nest building.

Internal control of combinations of instinct groups is obviously, however, far from being conscious of its ends, or even a steady and certain influence toward realizing them. Such revealing experiments as those of Fabre (8) bring out the blindness of the insect in following the suggestions that provoke the successive reflexes which make up instinctive activity. The caterpillar known as the pine processionary follows the leader by picking up the trail of thread left by it. Thus they travel in processions. Such a procession was noted by Fabre to get started about the rim of a palm vase. When the circuit was completed the leader encountered the original trail and became a follower of it. Thus the procession was started on an endless path. For days it kept on the circuit though at times frost and hunger threatened to disintegrate the procession. It is notable that the stimulus of a warm day rather than the discouragement of cold and hunger ultimately provoked a

more daring spirit and a wandering from the circle so long pursued. The burying beetles, thought by some to possess a power of dealing with new situations approximating nearly to reasoning, are shown by Fabre's experiments to be confined pretty closely to purely reflex responses to a narrow range of stimuli.

2. In reference to the classification of instincts Watson and Morgan (23) hold that, while Thorndike is "too prodigal in his list of original reactions, Freud is too parsimonious." The Freudians put sex instinct in the dominant position. Watson and Morgan would make fear and rage equally important. They distinguish four original stimuli of fear and seven native reactions to it. For rage they discover only one natural stimulus and five or six reactions. All other seeming reflexes except those of love they regard as conditioned reflexes—i.e., reflexes aroused not by their original stimuli but by conditions associated with these. Thus the larger part of the great list of original instinctive reactions suggested by Thorndike they regard as developed by education. Similarly Burnham (3) lays great stress on the conditioned reflexes. That the natural reflexes should be brought under the control of the proper stimuli, and that they should not be aroused where they are not in place he holds to be a prime condition of mental health. The ability to form conditioned reflexes is a good test of intelligence and the proper control of them a leading aim in education.

The importance of recognizing the various instinctive tendencies and of determining their consequences and their force is apparent when we deal with any practical phase of life where the drive of these tendencies constitutes the cause with which we have to deal. Hence applied psychology, whether it treats of pathological, legal, commercial and industrial, or educational problems, must needs distinguish the instincts and how they can be utilized and controlled for the better realization of the ends it has in view. Thus Hollingworth and Poffenberger (12), Strayer and Norsworthy, (17) Gordon (11), and Freeman (9) give us classifications of original tendencies and formulate views in regard to them which get their bias from the problems which these writers are concerned in solving. All agree with Thorndike that it is in the interest of clarity to substitute for older classifications of instincts a detailed list of the original sensori-motor reactions which a species can make, yet all, either with apologies for the imperfection of our knowledge, or, perhaps, with some attempt at justification of their procedure go on to give lists of instincts of the old-fashioned sort. Strayer and

Norsworthy, while not attempting to give a catalogue of all the native tendencies, distinguish a number of special importance in education. These are the tendencies to physical and mental activity, manipulation, collecting, rivalry, fighting, gregariousness, motherliness, kindness, approval and scorn. Gordon adds sleep to the list of instinctive tendencies, and treats as of special importance in education fear, collecting and play. Freeman distinguishes between life-preservative instincts—including feeding, defense, mating, home-building and care of young—and secondary instinctive activities which are of special educational value. These are play, which includes manipulation, curiosity and social responses. The latter comprise imitation, competition, social co-operation and the like. Out from these secondary instinctive activities grow the social, artistic and intellectual impulses which make up the motives of the educated man. Later these are supplemented by the vocational impulses which are fostered by the contact of youth with adult life.

Any one dealing with any aspect of dynamic psychology finds it not only convenient but necessary to group instinctive activities in these larger classifications based upon their functions. This is because the transformations which the teacher, the psychiatrist or the salesman wishes to make consist in breaking up original sensori-motor connections and the formation of new conditioned reflexes and habits. The motives that guide the process must be found within the one subjected to it. They are instincts, cravings, or fears, the appetites or aversions of Craig, the second variable of Bock. The significance of these may be vague or clear to their possessor, yet none the less they constitute a controlling force over him. They are the internal factor which prompts the instinctive act and without which, as Jennings long ago demonstrated, the incitement of the external stimulus would ordinarily be of no avail. When instinctive reactions to these cravings fail, new ones are sought. When we have analyzed the inherited behavior of the individual into an enormous number of specific sensori-motor reactions, there remains the study of the inner demands which these activities satisfy. Such functional cravings constitute the guidance to the process of learning. The observations of Swindle on nest-building show that this guidance may be very fitful and may be upset by external distractions very easily. Yet its presence would seem the only explanation of that "excess of useful over useless reactions" which we can scarcely ascribe merely to chance.

On this matter Freeman's view is of interest. He holds that we may gain from classifying together all the forms of activity that gain a common end. His reason therefor is in part because they "come to be classed together more or less closely in the mind of the person who acts, when he becomes conscious of the goal which is unconsciously aimed at in the simple, mechanical, instinctive responses." If this end is "unconsciously *aimed at*," it plainly guides the process by which the apparently mechanical activities of original nature are transformed into the consciously adaptive activities of the trained adult.

Another interesting characteristic of the treatment of original nature on the part of those interested in applications of psychology is their tendency to follow Woodworth in recognizing the capacities of sensation, attention, memory, muscular activity and the like as themselves a source of "drive" akin to what we have called the instincts. It is instinctive to crave to use any power one may possess, and education flourishes because of this source of energy.

Finally, on the question of classification we may note Warren's (22) preliminary outline of an arrangement to be later used in a book on *Human Psychology*. He attempts a complete catalogue to human reflexes, instincts, instinctive tendencies, emotions, and dispositions. The reflexes are classified from the point of view of presence or absence of control by experience. The instincts are divided into nutritive, reproductive, defensive, aggressive and social. The emotions and dispositions are similarly classified, except that for nutritive is substituted expressive, and a sixth special class added in each case. The instinctive tendencies include play, imitation, curiosity, dexterity, esthetic expression and communication. The author offers his table for criticism.

3. Among special instincts that have been treated we find most attention paid to fear. According to Bonnier (2) fear, which is the instinct of preservation, is merely an outgrowth of the striving to last which is the essence of living matter. From this primal tendency, as life becomes individuated, springs the fear of individual death, involving the distinction between undying spirit and matter which is subject to change. The fear of individual death is, however, somewhat pathological, since the individual is by nature mortal, and living matter as such alone undying. Similarly phobias develop in reference to various organic functions of the individual. Freud (10) looks upon the hostility to death as springing from resentment at the death of kindred, since we can not imagine our own

extinction. To compensate for the fact of death we develop the idea of spirit, which is supposed not to die. However, in the future life spirit may suffer worse than in this. Hence to kill is felt to involve blood guilt. Civilization thus cloaks over the fact of death in others, and we refrain from speaking or even thinking of it. War removes these restraints. We kill without sense of blood guilt and familiarly talk and think of death. Dupuis (7) attacks the view of Dugas, Nietzsche and others that bashfulness springs from a desire for more complete sympathy, and maintains that it is a form of fear, especially fear of ridicule.

The great war has provoked much discussion of herd instincts. Trotter (21) analyses all instincts into four groups. Three are pre-social—self-preservation, nutrition and sex. The other, gregariousness, evolves with society. Herd life favors the gregarious individual, who displays homogeneity with his fellows, who is more insensitive to experience than he is to group opinion, and who is hostile to all opposition to the herd tendency. However, the opposition of herd interests to the earlier instincts and also the progress of intelligence create conflicts. There are two classes of men with reference to these conflicts. One, the mentally stable, reconcile themselves with the herd life by ignoring or explaining away all opposing considerations. The other, more unstable, are skeptical about herd suggestions. Our society is governed by the mentally stable. The unstable, however, while less forceful, are more adaptable, and the herd should find some way of utilizing their sensitivity to conflicts without driving them into extreme and helpless opposition. Thus only can stagnation be avoided. The social habit in man is still very imperfect—indeed, grossly inefficient. War, so far from being biologically necessary, prevents progress by destroying the numbers and the variations which are indispensable to progress. Three types of herd life exist, the defensive herd, the aggressive herd, and the socialized herd. Germany is an aggressive wolf-like herd—not an enduring kind. England tends more to the socialized bee-like type, which if properly developed has promise for the future.

Howerth (14) like Trotter sees in patriotism an instinctive herd emotion which leads nations to unite in the presence of danger. Herds are kept together by instinct rather than by reason. They are susceptible to suggestion and are docile in the hands of leaders. In the great war all nations showed the herd characteristics, although there were individual differences—Germany, for example, being

dominated by militarism. The only basis for world unity Howerth finds in reason rather than instinct.

Mrs. Hollingworth (13) contributes an interesting study of the bearing of echolalia in idiots upon instinctive imitation. It has been contended by some, notably Thorndike, that the sensori-motor association involved in imitation is probably acquired, not inborn. In echolalia the patient does not answer words addressed to him but repeats them. Such echoing may persist in spite of punishment. Hence, Mrs. Hollingworth surmises, it may be due to inborn auditory-motor associations which remain strong in the idiot even when education does its best to root them out. Barr's imbecile could echo words in nine different languages with none of which he was familiar. The unlikelihood that the associations that lead to echolalia are acquired is strong evidence for instinctive imitation.

(4) When we consider the importance of the instincts as affording the "drive" in mental life we may expect that the new applied or dynamic psychology should be interested not only in analyzing out these sources of energy, but also in measuring their force. Moore (15) essays the task of finding their relative strength. He declares that current tests of mental ability are not a proper measure of the efficiency of the individual because they study only power of discrimination, memory, reasoning and the like, and neglect the instinctive forces which are quite as important a factor in achievement. To measure the strength of the instincts he uses the methods of association and distraction. Taking ten of the instincts in McDougall's catalogue he compiles lists of words relating to each. These words are used as cues in association tests, and the relative strength of the various instincts is determined from both the character of the words that are suggested and the reaction times. In the distraction experiments (16) problems are set and the distracting effects upon their solution of stimuli exciting fear, anger, embarrassment, sex interest, and repulsion are estimated. The relative effect of these various stimuli as distractions was in the order in which they have just been enumerated. Individual differences were greatest in reference to anger and embarrassment and least with sex interest and repulsion.

On the subject of play Curtis (6) has gathered together the experience of many years in a book characterized mainly by its excellent discussions of the ways in which play can be utilized in education. The rise of the play-ground movement is sketched and

explained. Five play movements are distinguished: (1) to provide play-grounds, particularly for city children; (2) to introduce organized play as a regular feature of school life, as in the Gary system; (3) to afford adequate opportunities for out of door play for children below school age; (4) to give the public generally more opportunity for free recreation; (5) to develop a wholesome play spirit among the people.

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## SPECIAL REVIEWS

*Logic.* BENEDETTO GROCE (Trans. by Douglas Ainslie.) New York: Macmillan, 1917. Pp. xxxiii + 606. \$3.50.

This book forms the third volume in Groce's *Philosophy of the Spirit*, the *Æsthetic* and the *Philosophy of the Practical* having preceded it. In the opinion of the translator "this Logic will come to be recognized as a masterpiece, in the sense that it supplants and supersedes all Logics that have gone before, especially those known as formal Logics. . . . Indeed, one of the chief boons conferred by this book will be the freeing of the student from that confusion of thought and word that is the essence of all formal Logic."

This book is not a text in logic for the undergraduate but a critique of logic for the mature student of philosophy. Logic is defined as the science of the pure concept, and by the pure concept is meant a universal idea, or a true generalization. The treatment is inexcusably abstract, yet, in spite of this defect, the merits of the book are so great that no student of philosophy can afford to overlook it. Groce has already entrenched himself in the front lines of philosophical thought and this book materially strengthens his position.

W. C. RUEDIGER

GEORGE WASHINGTON UNIVERSITY

*Schriften zur Anpassungstheorie des Empfindungsvorganges. Ertes Heft: Hypothesenfreie Theorie der Gegenfarben.* J. PIKLER. Leipzig: Barth, 1919. Pp. viii + 104.

This volume is one of a series of writings which offer a restatement of the entire theory of sensation in terms of modes of active adjustment (*Anpassung*) of the organism to stimulus situations, replacing the current interpretation of sensation as a passive consequence of "excitation." The conceptions which are employed are of a general, psycho-biological nature, but probably are best regarded as referring to central nervous processes. The reasoning is always ingenious but seldom convincing, since it completely neglects the data of modern nerve physiology and draws but little

upon established principles of psychology. This work upon the visual sensations would have been a great credit to Plato or even to Aristotle, but is only partly comprehensible to a twentieth century reader, and especially to a non-Teutonic one. Nevertheless, the patient student may find it suggestive of defects in our present view of the mechanism of sensation.

The first part of the book deals with the *achromatic visual qualities*. Hering's notion that different members of the gray series consist of fusions in various proportions of two components, black and white, is rejected and replaced by the idea of an algebraic quality scale—with a natural reference point at the mid-gray— involving a single variable, increments of which are expressed as whiteness or brightness and decrements as blackness or darkness. The degree of brightness or darkness of any achromatic quality is correctly designated as the difference between it and the mid-gray. Darkness is not a mere absence of visual sensation although it demands a cessation of the activity which is responsible for brightness.

Hering's theory of the physiological basis of the grays in various proportions of concomitant anabolic and catabolic change is found not to be consistent with the qualitative unity of the gray series, thus indicated. Instead, we must regard the achromatic sensations as the psychical counterparts of a series of graded adjustments of the organism to a set of stimuli which threaten, with progressively varying forces, to disturb its poise. All sensations are attributable to specific adjustments of this sort, which have as their absolute starting point the condition of *sleep*, with respect to which condition they depart by the development of various degrees of tension (*Anspannung*) and towards which they return by a process of relaxation (*Entspannung*). Any waking state involves a definite adjustment tension in this sense, and in the case of vision the normal waking tension is high, since the retinas are constantly subject to stimulation. This normal visual tension corresponds with our consciousness of the general level of illumination, and forms a secondary reference standard with respect to which temporary or local stimulus intensities are evaluated. It is the relaxation from this dominant adjustment which arouses the sensation of darkness as a positive experience. Local "corrections" of the same adjustment, either by increase or decrease of tension, account for the awareness of the specially light and dark regions of space which constitute achromatic visual objects, or local variations in illumina-

tion. The application of this theory to vision is compared with that to other departments of sensation.

According to Pikler, adaptation (in the usual sense) to different levels of brightness or illumination is not to be attributed to changes in the excitability of the retina, but to a shifting in position of the secondary reference standard, with respect to which "correcting" adjustments are made. Sometimes this shift results merely from expectation and precedes objective changes in illumination. Complete dark adaptation involves a return to the absolute zero of visual "tension" as a reference point. Analogous effects are found not only in other departments of sensation but in phenomena of perception. The results of Piper's experiments on monocular adaptation and binocular summation of brightness under various conditions of adaptation are explained by supposing that there can be different reference standards for the two eyes, and that the central nervous system neglects a blindfolded eye in brightness but not in darkness adaptation. The quality of the reference standard is attached to the space which intervenes between the eye and any object, objects being seen as bright or dark according to their relation with the brightness of space. This explains the approximate constancy of visual objects in changing illuminations, a fact not adequately accounted for by previously propounded views, such as those of Helmholtz, Hering, Jaensch, and Katz, which are criticized.

Simultaneous contrast is explained as a further result of changes in the reference standard, since this latter tends to correspond with the *average* brightness of the visual field. The introduction of a bright contrast area raises the standard, thus depressing relatively a darker, constant area. The positive after-image is due to inertia of the adjustment activity of the organism, and the negative after-image to an over-shooting of this process, both effects being expressive of the truth that sensation is due not to the stimulus itself but to an intrinsic vital action. The "fatigue" theory of the negative after-image is inconsistent with the phenomenon of its oscillation with the positive image. Simultaneous induction is attributed to the lapse of local "corrections" of adjustment—with respect to the reference standard—under conditions of difficult vision. *Nahe-*, *Grenz-*, and *Umgebungscontrast* are due to an exaggeration of adjacent "corrections," at boundaries where they would otherwise tend to neutralize one another. The idio-retinal light, seen in the absence of any stimulus, represents a very low level of adjustment.

tension of the visual system, which is unstable because it has no actual function. In comparison with the deep black derived from over-shooting or contrast processes it has a false brightness. The organism readily produces erroneous adjustments, when stimulus conditions are ambiguous or its own mechanisms disordered.

A brief review is given at this point of some of the fundamental conceptions of Pikler's general psycho-physical theory. The state of sleep, the absolute reference point of all "adjustments," is in itself an adjustment to the absence of all stimuli. Departure from this state is due to a waking instinct (*Wachtrieb*), which hungers for stimuli with respect to which to make adjustments. Prolonged deprivation of sleep however results in aberrations of perception attributable to a cumulative loss of direction of the adjustment activities, which are reoriented by the sleeping state. In sleep the Ego shrinks within itself and becomes reacquainted with its own nature!

The second part of the book discusses the *chromatic visual qualities*. The chromatic aspects of vision are attributed to specific conflicts between two simultaneously operative adjustment tendencies. Esthetic analogies are employed to show that a single stimulus may call forth inconsistent tendencies which result in a compromise form of consciousness exhibiting a new quality. The organism overcomes the erroneous tendency, but this *Ueberwindung* is reflected in the nature of the resulting sensation. In the case of color vision the conflicting impulses result from separate reactions to the *frequency* and the *intensity* of the stimulus. The high intensity of the "yellow" spectral rays makes for white, but their low frequency suggests black. Similarly, the low intensity of the "blue" rays indicates black but their high frequency suggests white. Yellow thus becomes a chromatic white while blue is a chromatic black, and the internal conflicts which are responsible for their chromaticities are opposite in direction. Similarly, red and green are chromatic grays, the former with a resisted tendency towards black and the latter with a resisted tendency in the direction of white.

An experimental verification of this fantastic, although ingenious, theory is sought in such phenomena as "Fechner's colors," in which appropriate pairs of achromatic stimuli are arranged so as to "conflict" with one another. Pikler finds that the colors thus produced are in harmony with his views; black followed by white gives yellow and *vice versa* blue, while black followed by gray yields

red and *vice versa* green. The familiar "*farbige Abklingen der Nachbilder*" is also used as evidence, together with color effects resulting from strong simultaneous achromatic contrasts.

The complementary or opponent relations of yellow to blue, and of red to green are easily accounted for by the above theory, since the resisted, internal tendencies of these color pairs—which are alone responsible for their chromaticity—are opposite in direction, and hence neutralize each other. This neutralization may be only partial, yielding intermediate tones or unsaturated colors. The relations of the theory to three-color mixture phenomena and to the doctrine of "color quality" as defended by Stumpf are discussed. Color blindness is a consequence of the total or partial inability to resist (*ueberwinden*) the impulses to specific kinds of achromatic vision aroused by stimulus frequencies, the low frequencies tending to produce black or darkness and the high ones white or brightness. Similar considerations apply to the color blindness of the retinal rods and the periphery of the visual field. In partial color blindness the red and green drop out before the blue and yellow because the conflict processes in the former pair are less violent than in the latter. Phenomena of chromatic contrast are explained along lines similar to those applied to achromatic contrast.

The reviewer is confident that the above brief summary provides as thorough a knowledge of Pikler's "hypothesis-free" theory of the visual process as any serious student of these problems will find useful.

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*The Autonomic Functions and the Personality.* EDWARD J. KEMPF.  
Washington: Nerv. & Ment. Dis. Publ. Co., 1918. P. 151. \$2.00.

Dr. Kempf has set forth in this book a theory of the biological entity as an organism that develops and functions for one purpose only—to preserve and prolong, in the most satisfying manner possible, its existence, either in its own body or projected into its offspring.

The great contribution of his work is the assigning to the autonomic nervous system the chief rôle in the life and development of that which we call an individual or a personality. This, and not the brain, dominates the organism. It is from affective states primarily arising in the autonomic system that all distinctive behavior, normal or pathological, arises. The upholders of the "Soul" in

psychology might imagine that the author took a malicious pleasure in bringing the seat of the unrest which is the source of action down among the humblest of the body's organs. Psychological data are brought forward to demonstrate the dominance of the autonomic system in all integrative action, and to support the theory that emotions, those fundamental urges to action, have a "peripheral origin in the autonomic functions," that is, the emotion, as one is aware of it, is an awareness (in some cases not a full conscious awareness) of disturbances in various visceral segments, these disturbances being constituted by changes of the muscular activities, particularly changes in the tensions of the viscera which stimulate local sense organs. On this simple theory of postural tonus of muscles, or visceral tension which is always being modified by the action of peripheral stimuli, and being restored, or neutralized, by procurement of counter-stimuli, the whole of human behavior is built up. The discussion of the influence of these affective functions, cravings or emotions, upon behavior forms a major and a most interesting portion of the work. It is believed that there is no such thing as absence of an affective state, and that all affective processes are always characterized by acquisitive tendencies toward certain stimuli and avertive tendencies toward other stimuli. Out of this ambivalent relationship toward the environment, creating an ambitetendency in the organism, arise conflict and repression, the phenomena described by Freud and here given a physiological basis. In the light of the theory that makes visceral tensions the originators of both emotions and actions the unconscious finds a natural and legitimate place in psychology. The trends of the personality, the moods, affects, or emotions are the result of the autonomic pressure for satisfaction of the organic needs. Character is the final result of the various compromises, more or less successful, which are struck in the general tendency of the several organic needs to find a balanced, integrated, expression.

The fundamental contentions of the book, which are the priority of the autonomic system, the peripheral origin of the emotions, and the physiological explanation of all psychological phenomena by the concept of visceral tensions constituting cravings and their readjustment, will certainly not pass unchallenged. It may be said that we do not know enough of neurology yet, and certainly not of endocrinology, to grant to the autonomic system all the functions claimed for it. We may find it difficult to conceive of its all-sufficiency in our more complex functionings. Kempf offers his

conception as a working theory and the attempt to apply it, well worth while, will expose its weaknesses in time. If it leaves many moot points of psychology still unsolved, it at least presents a most stimulating conception, which those who deal directly with problems of human psychology, whether in psychopathology and psychiatry, or in the psychological laboratory, may take as a working basis, to build upon and re-cast as new knowledge is added.

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*The Erotic Motive in Literature.* A. MORDELL. New York: Boni & Liveright, 1919. Pp. v + 250.

Besides the introduction and the conclusion, this book contains sixteen chapters, devoted to the psychoanalysis of various authors from Homer to Kipling. Special chapters are devoted to the analysis of Keats, Shelley, Poe, and Hearn. In several chapters Freud's views and explanations are discussed, and in the introduction the author proclaims his allegiance to Freud rather than to Adler, Jung, and others, who do not adhere to strict Freudian interpretations. The term "unconscious," we are told, is almost synonymous with "erotic." Other authors use "sexual" where Mordell uses "erotic," the former term being used when there is no necessary sex object, while "erotic" is a term of special sex appeal. Those who are acquainted with the specific or the general trends of psychoanalysis do not need detailed accounts of the contents of the book, others are referred to it as an introduction to, or as a primer of, the Freudian doctrines and methods of interpretation. Psychoanalysis is based upon the assumption of the transmission of acquired characteristics.

Every book, he claims, is planned because of the "erotic" of the author, and the only part that shows conscious traces is the composition. As a criticism and review, we might use the method of psychoanalysis upon his own work. By the application of fixed symbolism and a liberal use of "I think" we may refer the book to the unconscious (or the erotic) wishes of the author, for of all books he says "the very choice of the subject apart from the internal treatment furnishes the proof he [the author] could not help but choose that which interested him most because of some experience in his own life." Moreover, we might be forced to interpret Mordell's statement that he can psychoanalyze all literary works

as an example of a "conscious" feeling of superiority acting as a compensation for a real inferiority, the nature of which the reviewer has not time to determine analytically, and about which he hesitates to speculate.

SHEPHERD IVORY FRANZ

*Psychic Tendencies of To-Day.* A. W. MARTIN. New York: Appleton, 1918. Pp. viii + 161.

The author, a clergyman, points out that he is not an adherent of any of the current cults or occultism, but without formal recognition of Freud's teachings and explanations of the psychopathology of everyday life, he adopts the latter mode of explanation of many of the conditions with which he deals. Compensation is one of the principles he uses. Tolerance indicates "a certain offensive superiority," only a part of our mental life "gets completely rationalized," and of a critic of one of the cults with which the author deals he says the heated terms used describe the critic's "own irritation, impotence and unworthiness."

New Thought is dealt with in a chapter in which there is also some consideration of Christian Science. Each of these movements is shown to be exclusive. Each is the know-all and the be-all. Their adherents are "simply extremists, people who in their reaction from that limited medical science of sixty years ago, which disregarded the power of mind, have gone over to the opposite extreme." Martin would not have these cults legislated out of existence, for he considers that we do not know everything. What has been proven should guide our conduct, and we should, for examples, resort to the reporting of infectious diseases, to the killing of rats to prevent plague, and to the extermination of mosquitoes. So long as the mental scientists do not kill people, and do not retard the efforts to healthful living they are harmless in most particulars, and in a few particulars they are valuable antidotes to a strict materialism. The reaction against materialism is what has given force to the occultism of certain types now rampant. "Sir Oliver Lodge and the Objective evidence for Life After Death" is thus explained, and we are advised to suspend judgment in the matter by the conclusion that "it may be that with fuller investigation of (a) the medium's mind and (b) the mind of the sitter, of (c) thought-transference, of (d) subliminal activity, that the spiritistic hypothesis will prove superfluous." The final chapter of the book, Modern Materialism and Rebirth of the Immortal Hope, is largely a thrust at crass materialism and an exposition and advocacy of sane ethics.

The book should do much to make a certain class of the thinking public take a better view of some of the vagaries of the present moment, but to the adherents of special cults it will doubtless have little appeal.

SHEPHERD IVORY FRANZ

*Vegetative Neurology.* HEINRICH HIGIER. (Trans. by W. M. Kraus.) New York: Nerv. & Ment. Dis. Publ. Co., 1919. Pp. vii + 144.

The sub-title of this monograph is "The Anatomy, Physiology, Pharmacodynamics and Pathology of the Sympathetic and Autonomic Nervous Systems," which gives a better idea of the contents than the general title. The diversity of topics makes it impossible to give an abstract of the book, but in general it may be said that it contains much that should interest the psychologist who has leaning towards physiological explanations, or concomitant observations, of mental things. The part played by the sympathetic nervous system, or preferably the whole autonomic system, in the activities of the individual is very large. This system has not until recently received the attention it deserves, in its effects upon the modification of behavior, but with the allied endocrine organs we know that it is a determinant in emotional states and in emotional expression. Many so-called mental disturbances are now being understood to be dependent upon, if not caused by, deficiencies or exaggerations of activity of the glands of internal secretion and of the sympathetic system. Many can be "cured" by overcoming the disturbances of function.

About 300 titles are noted in the bibliography. Two of these are in English, and two are in French. The remainder do not indicate the predominance of the German mind in this field, but probably only the feeling of nationality of the author.

SHEPHERD IVORY FRANZ

*Achievement Examination in Reading.* (Sigma I For grades 1-3.)

*An Intelligence Examination.* (Delta I—For grades 1-3, Delta II—For grades 3-9.) M. E. HAGGERTY. Yonkers-on-Hudson: World Book Company.

This publication comprises three tests which Haggerty has devised and which were used in the State Survey of Virginia. As indicated in the titles, the first test is primarily a test of reading, and the second and third of intelligence. Delta I is a simplification

of the army test for the lower grades and Delta II is an adaption of the army test for intermediate and upper grades. The tests are all group tests and are accompanied by a full manual of direction and by scoring sheets. They are carefully worked out and constitute as well developed group tests as are available. The price of each test is approximately six cents per pupil, with a little in addition for scoring keys. A few more detailed comments by way of criticism may be made.

There are in the judgment of the writer somewhat too large a number of the *yes and no* type of test. Such a test, of course, can be passed with a score of fifty per cent. by mere guessing. It is, therefore, necessary to make a deduction from the score for errors. The formula for the scores of such tests is *rights minus errors*. This assumes that all errors are of the same sort and it practically results in a good many cases in negative scores. Another detailed aspect of the tests which might be further refined consists in the relative weight of the individual tests in a composite test. Each individual test has a maximum score determined by the number of parts. In Delta I, one test has ten parts and another forty-eight. This gives the latter test about five times the weight of the former. In Delta II the extremes are sixteen and forty. While it may be difficult to prove that the equalization of such differences would give a more reliable score, it would be theoretically preferable to equalize the scores of the different tests. Testing experience has shown that the refinement of technique has improved the reliability of the tests in general. It, therefore, seems worth while even at the cost of a little additional labor to adopt the theoretically best technique.

In Sigma I there is a general criticism which applies to a number of the questions as, for example, numbers 11, 13, 14, 17, and 18. The answers to these questions could readily be guessed by the child from the picture without reading the text. For example, above question 11 is a picture of a wolf, a pig and a kettle, and the question requires the child to put a line under the animal which is about to eat the pig. Any child who could not answer that question from looking at the picture, would be under suspicion.

Another comment has to do with the norms. The norms were undoubtedly obtained by a careful formulation of results, but there must be some source of error if we are considering the application to the average school system. Reference is made to the relationship between the grade norms and the age norms. They do not cor-

respond. The grade norms are high in comparison with the age norms. In order to get at the facts the writer has calculated the average age of the pupils of the various grades as obtained from the reports of Cleveland, Ohio, and Springfield, Mass. Take only a single instance. The average age of 8th grade pupils in these cities is 13.66 and 13.53 respectively and the norm for children of 13 given by Haggerty is 87, and for children of 14 it is 100. This would bring the norm for children averaging 13.6 years at 95. The norm which Haggerty gives for the eighth grade is 120, which is 25 points higher. This can only mean that either the age norms or the grade norms must be modified before they can be applied to the average city school system.

In the present edition only one form of the test is published. This will somewhat limit their usefulness in cases in which the tests are to be given repeatedly to the same children. In spite of this criticism, the tests are worked out with care and ingenuity and constitute one of our best sets of group tests.

FRANK N. FREEMAN

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#### EDITORIAL NOTE

We are pleased to announce the appointment of Professor Samuel W. Fernberger as assistant editor of the *BULLETIN*. Professor Fernberger will assume his editorial duties beginning with the January number.

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Names of contributors are printed in **SMALL CAPITALS**, and the page numbers of the contributions in **Full Face** type. In the case of authors reviewed or summarized the page numbers are in *Italics* and in the case of mention in the notes and book lists they are in Roman type.

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